**DEPARTMENT OF TRANSPORTATION**
DIVISION OF ENGINEERING SERVICES
Office of Structural Materials
Quality Assurance and Source Inspection

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Contract #: 04-0120F4
Cty: SF/ALA Rte: 80 PM: 13.2/13.9
File #: 1.28

# WELDING INSPECTION REPORT

**Resident Engineer:** Casey, William
**Address:** 333 Burma Road
**City:** Oakland, CA 94607

**Report No:** WIR-027984
**Date Inspected:** 16-Jul-2012

**Project Name:** SAS Superstructure
**Prime Contractor:** American Bridge/Fluor Enterprises, a JV
**Contractor:** American Bridge/Fluor Enterprises, a JV

**OSM Arrival Time:** 700
**OSM Departure Time:** 1930
**Location:** Job Site

**CWI Name:** As noted below

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|---|---|---|---|---|---|---|---|---|
| **Inspected CWI report:** | ☐ Yes | ☑ No | ☐ N/A | **CWI Present:** | ☑ Yes | ☐ No | |
| **Electrode to specification:** | ☑ Yes | ☐ No | ☐ N/A | **Rod Oven in Use:** | ☑ Yes | ☐ No | ☐ N/A |
| **Qualified Welders:** | ☑ Yes | ☐ No | ☐ N/A | **Weld Procedures Followed:** | ☑ Yes | ☐ No | ☐ N/A |
| **Approved Drawings:** | ☑ Yes | ☐ No | ☐ N/A | **Verified Joint Fit-up:** | ☑ Yes | ☐ No | ☐ N/A |
| | | | | **Approved WPS:** | ☑ Yes | ☐ No | ☐ N/A |
| | | | | **Delayed / Cancelled:** | ☐ Yes | ☑ No | ☐ N/A |

**Bridge No:** 34-0006
**Component:** SAS OBG

**Summary of Items Observed:**

Quality Assurance Inspector (QA) Douglas Frey was at the American Bridge/Fluor (ABF) job site at Yerba Buena Island in California between the times noted above in order to monitor Quality Control functions and the in process work being performed by ABF personnel. The following items were observed:

12E-E2.1-C (Interior)

This QA inspector randomly observed ABF/JV qualified welders perform the Shielded Metal Arc Welding (SMAW) and the Flux Core Arc Welding (FCAW) processes in the 2G horizontal positions on the “C” plate Complete Joint Penetration (CJP) B-U2a joint at 12E-E2.1 on the interior of the Corner Drop-In Panel of the OBG. Work on this joint had initiated on 7/3/2012 and is ongoing. This QA Inspector observed Quality Control (QC) Inspector Salvador Merino verify prior to the start of welding operations, that the minimum preheat temperature was as per the approved WPS was established; and afterwords verified that the welding parameters (Amps) for SMAW and (Amps and Travel Speed) for FCAW were in accordance with ABF-WPS-D1.5-1040C-CU and ABF-WPS-D1.5-3040A-1 respectively. ABF/JV qualified welders Mike Jimenez #4671 was observed performing the FCAW process from y+22,500mm to y+20,000mm along E2.1-C, Xiao Jian Wan #9677 performing FCAW from y+19,000mm to y+17,500mm, Jin Pei Wang #7299 performing SMAW from y+14,500mm to y+13,000mm and Richard Garcia #5892 performing FCAW from y+14,000mm to y+13,000mm. This QA Inspector verified that the 3.2mm electrodes were stored in an electrically heated thermostatically controlled oven after removal from the sealed containers. The exposure limits of the electrodes appeared to comply with the minimum storage oven temperature of 120 degrees Celsius as per the contract documents. The welding parameters and surface temperatures were verified by the QC inspector's utilizing a Fluke 337 clamp meter to measure the electrical

welding parameters. This QA Inspector verified that the E71T-1M spool for FCAW was obtained from a sealed container prior to installation into the LN-25 prior to operation. The welders was observed grinding and blending the start/stop edges of the work utilizing a small disc grinder and compressed air in between passes as QC measured the inter-pass temperatures with an infra-red temperature gun. This QA Inspector made subsequent observations throughout the shift to monitor quality and noted that the production welding at this location was in progress and appeared to be in general conformance with the contract documents.

12E PP115.2-BW1

This QA Inspector randomly observed ABF/JV qualified welder Jason Collins #8128 performing the SMAW process in the 3G vertical position on 12E PP115.2-BW1on the interior of the OBG. The work at this location was initiated this date. QC Inspector Salvador Merino was observed measuring the preheat temperature and setting the parameters to ensure compliance with the welding procedure specification (WPS) ABF-WPS-D1. 5-1040A-Revision 1. The welder was observed using a small disc grinder to blend the start/stop edges of the work to provide a smooth transition. The welder was observed utilizing 3.2mm E7018-H4R electrodes drawing amperage of 131. The electrodes were obtained from a baking oven verified by this QA Inspector. On a subsequent observation this QA Inspector monitored the work for quality and noted that it was in progress and appeared to be in general conformance with the contract documents.

12E PP111.1-C (Interior)

This QA Inspector made random observations of ABF welder Roby Smith #4245 performing SMAW in the 3G vertical position on 12E-PP111.1-C on the interior of the OBG. The welder was observed pre-heating the CJP joint with the ProHeat 35 thermal blankets and QC Inspector Salvador Merino verified the minimum temperature requirements as pertaining to ABF-WPS-D1.5-1040C-CU. E9018-H4R electrodes were observed in use and were drawing amperage of 132. It was noted that between passes the welder ground the stop/start edges of the work for a smooth transition as QC was present to measure inter-pass temperatures. This QA Inspector randomly observed the welder throughout the shift and on a subsequent observation; the work progressed without incident and was in progress. The work at this location was found to be satisfactory and appeared to be in general compliance with the contract specifications.

12E PP113.5-BW1 (Interior)

This QA Inspector made random observations of ABF welder Roby Smith #4245 performing SMAW in the 3G vertical position on 12E-PP111.1-C on the interior of the OBG. The welder was observed pre-heating the CJP joint with the ProHeat 35 thermal blankets and QC Inspector Salvador Merino verified the minimum temperature requirements as pertaining to ABF-WPS-D1.5-1040C-CU. E9018-H4R electrodes were observed in use and were drawing amperage of 132. It was noted that between passes the welder ground the stop/start edges of the work for a smooth transition as QC was present to measure inter-pass temperatures. This QA Inspector randomly observed the welder throughout the shift and on a subsequent observation; the work progressed without incident and was in progress. The work at this location was found to be satisfactory and appeared to be in general compliance with the contract specifications.

QA NDT

# WELDING INSPECTION REPORT

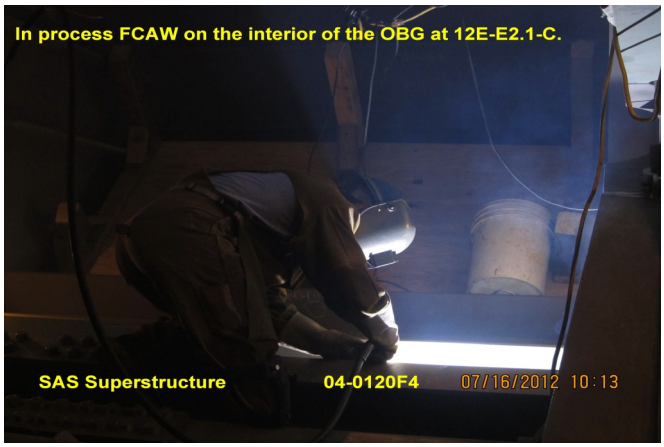
*( Continued Page 3 of 3 )*

This QA Inspector performed an Ultrasonic (UT) inspection on approximately 10% of the welds listed below. These welds were previously accepted by QC Ultrasonic technicians in accordance with AWS D1.5-2002, section 6, table 6.3. This QA observed the indications listed below at the time of testing. This QA generated a TL-6027 UT report on this date. The completed work observed at this location appeared to be in compliance with the contract specifications.

13E PP124.5-E2.2-BW1-UT OK.
13E/14E-LS7-UT OK.
13E PP121.5-E2.5-BW1-Class A rejectable indication at y+440mm.
13E PP121.5-E2.5-BF1-Class B acceptable indication at y+350mm.
13E PP121.5-E2.5-BF2-UT OK.
13E PP121-E2.4-BF1-UT OK.

**Summary of Conversations:**

Discussed welder assignments and locations with Quality Control Inspector Slavador Merino.





**Comments**

This report is for the purpose of determining conformance with the contract documents and is not for the purpose of making repair or fit for purpose recommendations. Should you require recommendations concerning repairs or remedial efforts please contact Nina Choy 510-385-5910 , who represents the Office of Structural Materials for your project.

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| **Inspected By:** | Frey,Doug | Quality Assurance Inspector |
| **Reviewed By:** | Levell,Bill | QA Reviewer |